This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

Designation: D8278 – 20

Standard Specification for Digital Contact Thermometers for Test Methods Measuring Flow Properties of Fuels and Lubricants[1]

This standard is issued under the fixed designation D8278; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope*

1.1 This specification establishes criteria for digital contact thermometers (DCT) for use in test methods that measure flow properties of materials within the scope of Committee D02. The DCT criteria are based on the design and sensing characteristics of the liquid-in-glass thermometers that are used successfully in Committee D02 test methods.

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D97 Test Method for Pour Point of Petroleum Products

D445 Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity)

D2162 Practice for Basic Calibration of Master Viscometers and Viscosity Oil Standards

D2500 Test Method for Cloud Point of Petroleum Products and Liquid Fuels

D2983 Test Method for Low-Temperature Viscosity of Automatic Transmission Fluids, Hydraulic Fluids, and Lubricants using a Rotational Viscometer

D3829 Test Method for Predicting the Borderline Pumping Temperature of Engine Oil

D4539 Test Method for Filterability of Diesel Fuels by Low-Temperature Flow Test (LTFT)

D4684 Test Method for Determination of Yield Stress and Apparent Viscosity of Engine Oils at Low Temperature

D5481 Test Method for Measuring Apparent Viscosity at High-Temperature and High-Shear Rate by Multicell Capillary Viscometer

D5853 Test Method for Pour Point of Crude Oils

D6371 Test Method for Cold Filter Plugging Point of Diesel and Heating Fuels

D6821 Test Method for Low Temperature Viscosity of Drive Line Lubricants in a Constant Shear Stress Viscometer

D6896 Test Method for Determination of Yield Stress and Apparent Viscosity of Used Engine Oils at Low Temperature

D7279 Test Method for Kinematic Viscosity of Transparent and Opaque Liquids by Automated Houillon Viscometer

D7962 Practice for Determination of Minimum Immersion Depth and Assessment of Temperature Sensor Measurement Drift

D8210 Test Method for Automatic Determination of Low-Temperature Viscosity of Automatic Transmission Fluids, Hydraulic Fluids, and Lubricants Using a Rotational Viscometer

E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods

E563 Practice for Preparation and Use of an Ice-Point Bath as a Reference Temperature

E644 Test Methods for Testing Industrial Resistance Thermometers

E1750 Guide for Use of Water Triple Point Cells

E2877 Guide for Digital Contact Thermometers

2.2 *ISO Standard:*[3]

ISO 17025 General requirements for the competence of testing and calibration laboratories

[1] This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products, Liquid Fuels, and Lubricants and is the direct responsibility of Subcommittee D02.07 on Flow Properties.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

*A Summary of Changes section appears at the end of this standard

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